

THAT WHICH IS CLAIMED:

1. A method of making a decorative sheet material comprising:
 - (a) directing a flexible carrier film through a coating station;
 - (b) depositing onto the surface of the carrier film a first coating layer of a solvent based clear coat composition;
 - 5 (c) depositing onto the first coating layer a second coating layer of a solvent based pigmented color coat composition;
 - (d) directing the thus coated carrier film from said coating station through a drying station and drying said first and second coating layers;
 - (e) directing the thus coated and dried carrier film through a coating station;
 - 10 (f) depositing onto the surface of the dried second coating layer a third coating layer of a solvent based primer composition;
 - (g) depositing onto the third coating layer a fourth coating layer of a solvent based adhesive composition;
 - (h) directing the thus coated film from said coating station through a drying station and drying said third and fourth coating layers.
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2. A method according to Claim 1, wherein said depositing steps (b) and (c) are performed during a first pass through said coating station, and said depositing steps (f) and (g) are performed during a second pass through the same coating station.
3. A method according to Claim 1, wherein said depositing steps (b) and (c) are carried out by directing said carrier web past first and second successively arranged coaters.
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4. A method according to Claim 3, wherein said first and second coaters are mounted adjacent a cylindrical coating roll, and wherein said directing step (a) comprises guiding the carrier film onto said coating roll and rotating the coating roll to advance the film while on said coating roll successively past said first and second coaters for
25 depositing said first and second coating layers.

5. A method according to Claim 4, wherein said first and second coaters comprise respective slot coating dies mounted at spaced locations along the circumference of said coating roll, and said depositing steps (b) and (c) are carried out by directing a film of each said coating compositions from the respective slot dies and
5 directly onto the adjacent exposed surface.

6. A method according to Claim 4, wherein said first and second coaters comprise a multi-slot coating die mounted adjacent said coating roll, and said depositing steps (b) and (c) are carried out by directing said carrier web past said multi-slot coating die and directing a film of each said coat composition from respective die slots of said
10 multi-slot die.

7. A method according to Claim 1, wherein said depositing step (b) comprises applying to the surface of the carrier film a coating of a fluoropolymer composition in a volatile organic solvent composition containing at least one high boiling solvent component selected from the group consisting of DMP and DBA.

8. A method according to claim 1, including the further step of directing one surface of a thermoformable backing layer into contact with the fourth coating layer of adhesive and laminating the backing layer to the decorative sheet material.
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9. A method according to claim 8, wherein the step of directing a thermoformable backing layer into contact with the fourth coating layer comprises
20 directing one surface of a sheet of a thermoplastic olefin or an acrylonitrile-butadiene-styrene resin into contact with the fourth coating layer of adhesive and passing the layers through the nip of a pair of cooperating rolls to laminate the backing layer to the decorative sheet material.

10. A method according to Claim 1, including the further steps of:
25 (i) directing a flexible carrier film through a coating station;
(j) depositing onto the surface of the carrier film a coating layer of a mask coat composition;

(k) directing the thus coated film from said coating station through a drying station and drying said coating layer to form an extensible mask layer releasably carried by said carrier film;

5 (l) advancing the thus coated and dried carrier film with said mask layer thereon along a path of travel toward a heated nip;

(m) advancing the coated film from step (h) along a path of travel toward said heated nip with the coated surface oriented toward the mask layer of said film;

(n) stripping the flexible carrier film from said coated film to expose said first coating layer; and

10 (o) applying heat and pressure to the films as they pass through said nip to bond said mask layer to said first coating layer.

11. A method according to claim 10, including the further step of stripping the carrier film from said mask layer.

12. A method of making a decorative sheet material comprising:

15 (a) directing a flexible carrier film along a path of travel from a supply roll and onto the peripheral surface of a cylindrical coating roll;

(b) maintaining the carrier film in contact with the surface of the coating roll over a predetermined arcuate extent of the coating roll while rotating the coating roll to advance the carrier film successively past first and second coaters positioned adjacent the coating roll;

20 (c) depositing with said first coater onto the surface of the carrier film a first coating layer of a solvent based fluoropolymer clear coat composition;

(d) depositing with said second coater onto the first coating layer a second coating layer of a solvent based pigmented color coat composition;

25 (e) directing the thus coated carrier film from said coating roll to and through a drying station and drying said first and second coating layers; and

(f) collecting the thus coated carrier film in the form of a roll.

13. A method according to Claim 12, including the further steps of:

(g) directing the coated carrier film from step (f) along a path of travel from a said roll and onto the peripheral surface of a cylindrical coating roll;

5 (h) maintaining the carrier film in contact with the surface of the coating roll over a predetermined arcuate extent of the coating roll while rotating the coating roll to advance the carrier film successively past first and second coaters positioned adjacent the coating roll;

(i) depositing with said first coater onto the second coating layer a third coating layer of a solvent based primer composition;

10 (j) depositing with said second coater onto the third coating layer a fourth coating layer of a solvent based adhesive composition;

(k) directing the thus coated film from said coating roll to and through a drying station and drying said third and fourth coating layers.

15 14. A method according to Claim 12, wherein said second coater comprises a multi-slot die coating die, and said depositing step (d) comprises directing said pigmented color coat composition from one die slot of said multi-slot coating die, and directing a different coating composition from another of the die slots of said multi-slot coating die.

20 15. A method according to Claim 14, wherein said step of directing a different coating composition from another die slot is carried out so as to position said different coating composition between said first coating layer of clear coat composition and said second coating layer of pigmented color coat composition.

25 16. A method according to Claim 14, wherein said step of directing said pigmented color coat composition from one die slot of said multi-slot coating die is performed over a first portion of the width of said multi-slot die and wherein said step of directing a different coating composition from another die slot is performed over an adjacent contiguous second portion of the width of said multi-slot to thereby form adjacent contiguous stripes of said pigmented color coat composition and said different coating composition.

17. A method according to Claim 12, wherein said second coating layer of a solvent based pigmented color coat composition also includes a primer, and including the further steps of:

5 (g) directing the coated carrier film from step (f) along a path of travel from a said roll and onto the peripheral surface of a cylindrical coating roll;

(h) maintaining the carrier film in contact with the surface of the coating roll over a predetermined arcuate extent of the coating roll while rotating the coating roll to advance the carrier film past said first and second coaters positioned adjacent the coating roll;

10 (i) depositing with at least one of said coaters onto the second coating layer a coating layer of an adhesive composition;

(j) applying a backing layer to said adhesive third coating layer.

15 18. A method according to Claim 17, wherein said step of applying a backing layer to said adhesive coating layer comprises directing one surface of a thermoformable sheet material into contact with the adhesive third coating layer and applying pressure to laminate the backing layer to the sheet material.

19. A method of making a decorative sheet material comprising:

(a) directing a flexible carrier film through a coating station;

20 (b) depositing onto the surface of the carrier film a clear coat composition comprising polyvinylidene fluoride polymer and a volatile organic solvent and forming a first coating layer of substantially uniform thickness;

(c) depositing onto the first coating layer a color coat composition comprising an acrylic polymer, pigment and a volatile organic solvent and forming a second coating layer of substantially uniform thickness over the undried surface of the first coating layer;

25 (d) advancing the carrier film with the thus formed undried first and second coating layers thereon from said coating station to a drying station; and

(e) maintaining the drying station at an elevated temperature of at least 200 degrees F. while advancing the carrier film through the drying station for a time sufficient to evaporate the organic solvent and to dry said first and second coating layers;

(f) directing the dried coated film from the drying station and forming the film into a roll.

20. A method according to Claim 19, including the further steps of:

5 (g) directing the coated carrier film from step (f) along a path of travel from a said roll and onto the peripheral surface of a cylindrical coating roll;

(h) maintaining the carrier film in contact with the surface of the coating roll over a predetermined arcuate extent of the coating roll while rotating the coating roll to advance the carrier film successively past first and second coaters positioned adjacent the coating roll;

10 (i) depositing with said first coater onto the second coating layer a third coating layer of a solvent based primer composition;

(j) depositing with said second coater onto the third coating layer a fourth coating layer of a solvent based adhesive composition;

15 (k) directing the thus coated film from said coating roll to and through a drying station and drying said third and fourth coating layers.

21. Apparatus for making a decorative sheet material comprising:

(a) a coating station having first and second coaters;

(b) means for supplying to the first coater of said coating station a solvent based clear coat composition;

20 (c) means for supplying to the second coater of said coating station a solvent based pigmented color coat composition;

(d) an unwind stand for receiving a roll of flexible carrier film;

25 (e) means for directing the flexible carrier film from said unwind stand through said coating station and successively past said first and second coaters for forming a first coating layer of said clear coat composition on the surface of said carrier film and a second coating layer of said pigmented color coat composition on said first coating layer;

(f) a drying station positioned adjacent said coating station to receive the thus coated film from said coating station and to dry said first and second coating layers;

(g) a windup stand positioned for receiving the coated and dried film from said dryer and for winding the same into a roll.

22. Apparatus according to Claim 21, wherein said coating station includes a rotatably mounted cylindrical coating roll mounted for receiving the carrier film, and
5 wherein first and second coaters are mounted adjacent said coating roll and successively arranged so that rotation of the coating roll advances the carrier film while on said coating roll successively past said first and second coaters for depositing said first and second coating layers.

23. Apparatus according to Claim 21, wherein said first and second coaters
10 comprise respective slot coating dies mounted at spaced locations along the circumference of said coating roll.

24. Apparatus according to Claim 22, wherein said first and second coaters comprise a multi-slot coating die mounted adjacent said coating roll.